

# PATENT SPECIFICATION

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## (54) IMPROVEMENTS RELATING TO PROTECTIVE PLASTIC HOODS

(71) We, PLYSU LIMITED formerly known as PLYSU PRODUCTS LIMITED, a British Company of Woburn Sands, Bletchley, Buckinghamshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to protective plastic hoods worn, for example, in atomic power stations and research laboratories when working with toxic materials.

15 For some applications a protective suit must be completely closed, and air is therefore piped into the suit at an appropriate point. One problem which can then arise is that of excess carbon dioxide accumulating within the hood of the suit. It has therefore been proposed to form the hood with a double skin, air being introduced between the two skins and emerging through apertures in the lower skin positioned at the top of the hood so that the air is directed downward across the wearer's face. It was found, however, that the skins were inclined to stick to one another and thereby restricted the flow of air to the apertures with the result that air was frequently forced through only one or two of the apertures, and the wearer therefore received an uneven distribution of air over his face.

20 According to the present invention a protective thermoplastic hood includes a top portion having a double skin, the double skin including a preformed duct having an inlet for connection to an air supply and at least one aperture, the arrangement being such that, with the hood positioned over the head of a wearer, air received through the inlet is directed along the duct and emerges through the aperture or apertures downwards across the wearer's face. The skins are preferably vacuum-formed to provide an annular duct when superimposed on one

another, and then high frequency welded around the edges of the duct.

In one embodiment of the invention the top portion of the protective thermoplastic hood is formed by moulding an annular ridge or depression around a first thermoplastic skin, superimposing the first skin on a second skin, bonding the two skins to one another around the inner ring of the annular ridge or depression and around a major portion of the outer ring to form an annular duct, and forming an aperture in the inner skin within the opposite half of the annular duct to the half containing the unsealed portion of the outer ring. Alternatively the two skins may be bonded to one another around the complete annular duct and a pair of apertures are then formed in opposite halves of the duct.

In order that the invention may be more easily understood, two examples will now be described with reference to the accompanying drawings in which:—

Figure 1 is a plan view of a protective thermoplastic hood; and

Figures 2 and 3 are sectional views illustrating two alternative methods of introducing air into the annular duct of the hood shown in Figure 1.

Referring to these drawings, the top of the protective hood is formed of two thermoplastic skins 1 and 2 which are high frequency welded together around the edges of an annular duct 4. The duct is formed by vacuum-forming an annular ridge 3 around the inside skin before the two skins are superimposed on one another.

In the Figure 2 arrangement the seal around the outer perimeter A is broken at one point and the two skins form an extended skirt 5 at this point through which air may be introduced into the duct.

In the alternative arrangement shown in Figure 3 the seal around the inner and outer perimeters B and A is unbroken but the duct includes an air inlet port 6.

The inside skin 2 is formed with air deflector holes 6, the holes being grouped opposite the air inlet such that the air is distributed evenly over the holes from each side of the duct. When the hood is fitted over the head of a wearer, the holes lie at the front of the hood so that air is directed downwards over the wearer's face. The air inlet may lie anywhere within the rear half of the duct. In some hoods the group of holes may be replaced by a single slit.

#### WHAT WE CLAIM IS:—

1. A protective thermoplastic hood including a top portion having a double skin, the double skin including a preformed duct having an inlet for connection to an air supply and at least one aperture, the arrangement being such that, with the hood positioned over the head of a wearer, air received through the inlet is directed along the duct and emerges through the aperture or apertures downwards across the wearer's face.

2. A hood according to claim 1 in which one of the skins includes a moulded annular ridge or depression and in which the two skins are bonded to one another around the inner and outer rings of the annulus to form the said duct.

3. A hood according to claim 2 in which the seal around the outer ring of the annulus does not extend completely around the ring, the unsealed portion forming the air inlet.

4. A method of forming the top portion of a protective thermoplastic hood, comprising: moulding an annular ridge or depression around a first thermoplastic skin,

superimposing the first skin on a second skin, bonding the two skins to one another around the inner ring of the annular ridge or depression and around a major portion of the outer ring to form an annular duct, and forming an aperture in the inner skin within the opposite half of the annular duct to the half containing the unsealed portion of the outer ring whereby, with the hood positioned over the head of a wearer, air may be introduced through the unsealed portion of the outer ring into the duct to emerge through the aperture downwards across the wearer's face.

5. A method of forming the top portion of a protective thermoplastic hood, comprising: moulding an annular ridge or depression around a first thermoplastic skin, superimposing the first skin on a second skin, bonding the two skins to one another around the inner and outer rings of the annular ridge or depression to form an annular duct, and forming a pair of apertures in opposite halves of the duct whereby, with the hood positioned over the head of a wearer, air may be introduced through a first of the apertures into the duct to emerge through the second aperture downwards across the wearer's face.

6. A hood according to claim 1 and substantially as herein described with reference to the accompanying drawings.

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*Fig. 1.*

